

DPC'10 Program

(Oral Sessions in Auditorium, Poster Sessions in Gallery)

Monday (June 21)

- 7:30-9:00 Registration (at the Lobby of B401-APS Conference Center)
- 9:00-9:30 Opening
- 9:30-10:15 Sturge Prize Lecture
Presiding: Richard Meltzer
- SL-1 Thierry Chanelière Quantum light storage in rare-earth doped crystals: recent progresses toward efficient and large-capacity single photon storage.
- 10:15-10:45 *Coffee Break*
- Session-A Spectroscopy of Nanoscale and Single Nano Objects
Presiding: A. Meijerink, A. V. Naumov
- 10:45 AI-1 Gregory Scholes Two-dimensional photon echo spectroscopy of CdSe nanocrystal quantum dots
- 11:15 AI-2 Kazunari Matsuda Energy transfer between excitons and plasmons in semiconductor-metal hybrid-nanostructures
- 11:45 AO-1 Peter Reineker Model for off-time distributions in quantum dots
- 12:00 AO-2 S. P. Feofilov Gaseous environment-sensitive fluorescence of YAG:Ce³⁺ nanocrystals
- 12:15 AO-3 Stephen Gray Dynamics of single semiconductor nanocrystals near metal nanostructures
- 12:30-13:30 *Lunch*
- Session-B(1) Energy Transfer and Exciton Dynamics
Presiding: S. P. Feofilov, A. J. Silversmith
- 13:30 BI-1 Bernard Jacquier How thulium impurities impact photodarkening effect in Yb³⁺-doped fibre laser?
- 14:00 BO-1 A. Meijerink Modelling energy transfer using Monte Carlo simulations
- 14:15 BO-2 Yu.V. Orlovskii Energy transfer probe for characterization of photonic crystals morphology
- 14:30 BO-3 M. Ichimiya Efficient radiative recombination of multinode-type excitons up to room temperature in CuCl thin films
- 14:45 BO-4 Koichiro Tanaka Nonlinear response of exciton transition under intense Terahertz-pulse irradiation in ZnSe/ZnMgSSe multi-quantum wells
- 15:00 BO-5 Tetsuo Ogawa From exciton to photon condensation via polariton in electron-hole-photon systems
- 15:15 BO-6 Seiji Taguchi Energy transfer dynamics in Mn²⁺-doped CdS nanocrystals
- 15:30-16:00 *Coffee Break*
- Tutorial Lecture A Dynamics of Excited States in Nanoscale Materials
Presiding: Daniel Boye
- 16:00-17:00 TL-1 Brian Tissue
- 18:00-19:00 Reception (Gallery)
- 19:00-20:30 Poster Session A
Presiding: Phil Goldner, Shinichiro Iwai, Kelley Nash

20:30-22:00 Concert (Auditorium)
Saxophonist Tim Branch Quartet

Posters in Session-A (P1-P36)

P1	Hála, Jan	Singlet oxygen lifetime dependence on photosensitizer concentration in lipid films
P2	León-Luis, S. F.	Upconversion studies on Er ³⁺ -doped NaYF ₄ nanocrystalline transparent glass-ceramic under pressure
P3	Martín-Rodríguez, R.	Upconversion emission in Gd ₃ Ga ₅ O ₁₂ and Y ₃ Al ₅ O ₁₂ nanocrystals doped with Tb ³⁺ -Yb ³⁺ and Eu ³⁺ -Yb ³⁺
P4	Monte, A.F.G.	High spatial energy transfer in CdS quantum dot systems measured by the photon migration length
P5	Ogurtsov, A.N.	Thermal inactivation of excitonically-induced defect formation in solid Xe
P6	Orlovskii, Yu.V.	Direct Fluorescence Quenching in Impurity Spherical Crystalline Nanoparticles
P7	Skanthakumer, S	Bonding effects on the magnetic properties of actinide compounds
P8	Renge, Indrek	Motional Narrowing of Broadband Absorption Due to Proton Dynamics in Hydrogen Bonded Complex of Betaine 30
P9	Zhang, Jisen	Energy Transition between Yb ³⁺ -Tm ³⁺ -Gd ³⁺ in Gd ³⁺ , Yb ³⁺ and Tm ³⁺ co-dopedg Fluoride Nanocrystals
P10	Arpino, K.E.	Post Annealing Immersion: a new technique for studying rare earth ions in porous materials
P11	Eremchev, I.Yu.	Ortho-dichlorobenzene doped with terrylene – a highly photo-stable single-molecule system with unique properties
P12	Fujiwara, Masanori	Single-component reflecting objective for low-temperature imaging and spectroscopy of single nano objects
P13	Gorshelev, A.A.	Synchronous measurements of a large number of single-molecule spectra: study of low-temperature dynamics in complex matter
P14	Harvey, Tyler	Nano-crystal formation and luminescence efficiency of RE doped Sol-Gel glasses
P15	Jacquier, Bernard	Structural disorder in ytterbium-doped nanostructures and glasses probed by resonant fluorescence line narrowing
P16	Jiménez, J.A.	Evolution of the optical properties of a silver-doped phosphate glass during thermal treatment
P17	Kumar, K. Upendra	Structural, morphological characterization and spectroscopic investigations on lanthanide doped nanocrystalline Y ₃ Ga ₅ O ₁₂
P18	Lu, Shaozhe	Temperature-dependent photoluminescence of Eu ³⁺ doped silicate nanomaterials
P19	Malyukin, Yuriy	Surface-stimulated Gorsky effect in Y ₂ SiO ₅ :Pr ³⁺ nanocrystals
P20	Miyazaki, Jun	Excitation energy localization in quantum dots cluster
P21	Acharya, K.	New insight into the electronic structure of the CP43 and CP47 antenna protein complexes and the reaction centre of photosystem II. hole burning study and simulation of optical spectra
P22	Hu, Yi	A single molecule approach for the determination of molecular electric fields in proteins
P23	Ma, Li	Thermal stability study of spin labeled hemoglobin using optical and EPR spectroscopies
P24	Neupane, Bhanu	Excitation energy transfer in ethynyl linked chlorophyll trefoil and its aggregates
P25	Palm, Viktor	Terrylene single-molecule linewidth distribution in incommensurate biphenyl versus distributions in amorphous hosts
P26	Brik, M.G.	Analysis of the electron-vibrational interaction in the 5d states of Ce ³⁺ in NaMgSO ₄ , Na ₃ SO ₄ , and KZnSO ₄ Cl crystals
P27	Burdick, Gary W.	Comparative crystal-field analysis of holmium garnet systems
P28	Meltzer, R.S.	CaSO ₄ :Pb – a deep UV scintillator - spectroscopy and dynamics

P29	Beyler, A.P.	Effects of drying control chemical additives on rare-earth doped sol-gel glasses
P30	Feofilov, S.P.	Sc ₂ O ₃ :Ce ³⁺ nanocrystals: fluorescence and its dependence on the surrounding gas pressure
P31	Happek, Uwe	Luminescence of octahedrally coordinated Eu ²⁺ Ions in CsCaF ₃
P32	Hizhnyi, Yu.	Theoretical studies of excited electronic states related to the luminescence processes in AWO ₄ (A = Pb, Ca, Cd, Zn) tungstates
P33	Kushnirenko, V.I.	Luminescent characteristics of Ag-related centers in ZnO
P34	Moorthy L, Rama	Near infrared fluorescence studies of Er ³⁺ -doped alkali lead tellurofluoroborate glasses
P35	Naik, Veena	Synthesis and characterization of rare earth octoates
P36	Pan, Yuexiao	Enhancement of CaAl ₁₂ O ₁₉ : Mn ⁴⁺ photoluminescence via composition modification with MgO

Tuesday (June 22)

Session-C Excited State Dynamics of Macromolecules and Biomolecules

Presiding: Liaohai Chen, Ken-ichi Mizuno

8:00	CI-1	Ryszard Jankowiak	Lowest electronic states of the photosystem II core and its antennas: hole-burning, simulation of optical spectra, and revised structural assignments
8:30	CI-2	Liaohai Chen	Fluorescence of ionic conjugated polymer: from super quenching to super enhancing and beyond
9:00	CO-1	Satoshi Habuchi	Relationship between conformation and optical properties of single conjugated polymer molecules
9:15	CO-2	Atsushi Yabushita	Direct observation of molecular structural change during intersystem crossing by real-time spectroscopy with a few optical cycle laser
9:30	CO-3	Mitsuru Sugisaki	Strong coherent coupling of vibronic oscillations in carotenoid dissolved in an organic solvent and bound in pigment-protein complexes
9:45	CO-4	Martin Vacha	Absorption linear dichroism directly measured on a single light-harvesting complex of photosynthetic bacteria

10:00-10:30 *Coffee Break*

Session-B(2) Energy Transfer and Exciton Dynamics

Presiding: Jun Lin, Yu. G. Vainer

10:30	BI-2	Jiahua Zhang	Optical properties and energy transfer in white LED phosphors
11:00	BO-7	Feng Liu	Impurity-trapped exciton luminescence in Eu ₄ Al ₁₀ O ₁₉ nanobelts
11:15	BO-8	R. Martín-Rodríguez	Temperature and temporal dependence of the green upconversion luminescence in Mn ²⁺ and Yb ³⁺ co-doped LaMgAl ₁₁ O ₁₉
11:30	BO-9	Kwangwon Park	Eu ²⁺ -induced Mn ²⁺ emission in Eu ²⁺ /Mn ²⁺ -codoped phosphors
11:45	BO-10	Ki-Soo Lim	Energy transfer between silver and cerium ions in borate glass

12:00-13:30 *Lunch*

Tutorial Lecture B Synchrotron Radiation Studies of Excited State Dynamics of Solids

Presiding: Lin X. Chen

13:30-14:30	TL-2	T. K. Sham
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Session-D Excited State Studies Using Synchrotron Radiation

Presiding: Lynda Soderholm, T. K. Sham

14:30 DI-1 Lin X. Chen Molecular Snapshot in Solar Energy Conversion Processes Taken by Ultrafast X-rays

15:00 DI-2 Richard A. Rosenberg Time-resolved x-ray excited optical luminescence

15:30-16:00 *Coffee Break*

16:00-17:00 Guided Tour to Advanced Photon Source (APS)

19:00-22:00 Poster Session B

Presiding: Phil Goldner, Shinichiro Iwai, Kelley Nash

Poster Session B (P37-P69)

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| P37 | Shi, Liang | Investigation of crystallographic sites of Eu^{3+} ions in $\text{La}_2\text{BaZnO}_5$ by site-selective laser-excitation spectroscopy |
| P38 | Vallejo-Kumar | Optical, fluorescence and white light emission properties of Dy^{3+} -doped P_2O_5 - K - MgO/MgF - Al_2O_3 glasses |
| P39 | Wada, Yoshiki | Excitation photon energy dependence of the relaxation processes of the photoexcited states in quasi-one-dimensional halogen-bridged Pt complexes |
| P40 | Yamamoto, Aishi | Multi-peak photoluminescence in ZnO nanocrystals studied by time-resolved and spatially-resolved photoluminescence spectroscopies |
| P41 | David, Zapletal | Comparison of emission spectra of single LH2 complex for different types of disorder |
| P42 | Kasprowicz, Dobrosława | Micro-Raman investigations of $\text{KGd}(\text{WO}_4)_2$ single crystals triply-doped with $\text{Tb}^{3+}/\text{Tm}^{3+}/\text{Yb}^{3+}$, $\text{Ho}^{3+}/\text{Tm}^{3+}/\text{Yb}^{3+}$ and $\text{Pr}^{3+}/\text{Tm}^{3+}/\text{Yb}^{3+}$ |
| P43 | Lee, Kyudong | Temperature dependence of $(\text{Ca}, \text{Sr}, \text{Ba})_3\text{MgSi}_2\text{O}_8$: Eu^{2+} , Mn^{2+} phosphors |
| P44 | Meixner, Alfred Johann | Imaging and spectroscopy of defect luminescence and electron-phonon coupling in single SiO_2 nanoparticles |
| P45 | Park, Kwangwon | The main factor to determine whether Mn^{2+} -doped materials are optically active or inactive: electron-phonon coupling |
| P46 | Reineker, Peter | Coupling of Frenkel excitons, charge transfer excitons and vibrations in linear absorption spectra of polyacene crystals |
| P47 | Segawa, Mami | Effect of lattice motion on relaxation of photoexcited states in one-dimensional Mott insulators |
| P48 | Watanabe, J. | Spectral broadening in phonon Raman scattering and its Stokes to Anti-Stokes Intensity Ratio |
| P49 | Ivanovskikh, K.V. | Microwave study of complex permittivity and photoionisation processes in $\text{Lu}_3\text{Al}_5\text{O}_{12}:\text{Pr}^{3+}$ scintillator materials |
| P50 | Mizuno, Ken-ichi | Hole-burning of perylene microcrystallites embedded in PVA |
| P51 | Jacinto, Carlos-2 | Fluorescence and Raman gain preserved on femtosecond laser written stress-induced $\text{Nd}:\text{YVO}_4$ waveguides |
| P52 | Takeuchi, H. | Frequency-tunable terahertz electromagnetic wave emitters based on undoped GaAs/n-type GaAs epitaxial layer structures utilizing sub-picosecond-range carrier transport processes |
| P53 | Tatsumi, Tokio | Photoexcited states in charge ordered insulators α -(BEDT-TTF)2X and dimmer Mott insulators κ -(BEDT-TTF)2X |
| P54 | Diakhate, Momar S. | Laser induced non-thermal melting of germanium |
| P55 | Maruta, Satoshi | New ultrafast energy transfer pathway in a photosynthetic core antenna from rhodospirillum rubrum S1 revealed by femtosecond time-resolved spectroscopy |
| P56 | Nakamura, A. | Ultrafast nonlinear optical response of metallic single-walled carbon nanotubes |

P57	Vikhnin, Valentin	Mechanisms of light-induced insulator-to-metal phase transition and of ultrafast optical response in metallic phase for vanadium dioxide: manifestation of charge transfer vibronic excitons
P58	Akilbekova, D.A.	Heavy ion-induced damage of surface and electron color centers in lithium fluoride crystals
P59	Baran, Ania	Effects of pressure and temperature on the luminescence of $\text{Ca}_2\text{SiO}_4:\text{Eu}^{2+}$ and $\text{Ba}_2\text{SiO}_4:\text{Eu}^{2+}$
P60	Brik, M.G.	High-pressure studies of electronic, optical and elastic properties of pure and Yb-doped InP and GaN single crystals
P61	Mahlik, S.	High pressure and time resolved luminescence of $\text{La}_2\text{Be}_2\text{O}_5:\text{Pr}^{3+}$
P62	Rodríguez-Mendoza, U.	Luminescence of $\text{Mn}^{4+}:\text{YAG}$ under high pressure
P63	Rozo, Carlos	Sputtering conditions and the photoluminescence of Er-doped silicon rich oxide thin films
P64	Jacinto, Carlos	Color tunability with temperature and pumping-intensity in $\text{Yb}^{3+}/\text{Tm}^{3+}$ co-doped aluminosilicate glasses under anti-Stokes excitation
P65	Wisniewski, K.	High pressure and time resolved luminescence of the garnet $\text{Ca}_3\text{Sc}_2\text{Si}_3\text{O}_{12}$ doped Tb^{3+}
P66	Yamada, Yasuhiro	Auger recombination dynamics in SrTiO_3 under high-density photoexcitation
P67	Vikhnin-Liu	Possible origin of uranyl fluorescence satellite hot bands: charge transfer vibronic Excitons
P68	Reid, Mike	Calculations of energy levels, dynamics, and lifetimes of $4f^{12}5d$ states of Tm^{2+} in SrC^{12}
P69	Reid, Mike	Calculation of crystal-field parameters for 4f and 5d states of lanthanide ions from ab-initio calculations

Wednesday (June 23)

Session-E(1) Spectroscopy and Excited State Dynamics of Doped Clusters, Phosphors and Semiconductors

Presiding: Bernard Jaquier, Alexander Eisfeld

8:00	El-1	Xueyuan Chen	Optical spectroscopy of lanthanides doped in wide band-gap semiconductor nanocrystals
8:30	El-2	M. G. Brik	<i>ab initio</i> and semi-empirical modeling of physical properties of pure and doped optoelectronic materials
9:00	EO-1	L. E. Bausá	Two-dimensional fluorescent patterns by micrometric control of rare earth ion emission
9:15	EO-2	Uwe Happek	Anomalous luminescence in Eu^{2+} doped barium hafnate
9:30	EO-3	Jun Lin	Multiform oxide optical materials via the versatile pechini-type sol-gel process: synthesis and characteristics
9:45	EO-4	A. A. Gorokhovskiy	Confocal micro-luminescence spectroscopy and mapping of optical centers in diamond
10:00	EO-5	Kelly L. Nash	Optical characterization of highly epitaxial perovskite ErTiO_3 thin films

10:15-10:45 *Coffee Break*

Session-E(2) Spectroscopy and Excited State Dynamics of Doped Clusters, Phosphors and Semiconductors

Presiding: Brian Tissue, Xiaojun Wang

10:45	El-3	Haiornng Zheng	Fluorescence enhancement in Ln^{3+} doped nanoparticles
11:15	EO-6	A. J. Silversmith	Mechanisms of fluorescence enhancement in rare earth sol-gel glass containing Al^{3+}
11:30	EO-7	Liang Shi	Investigation of crystallographic sites of Eu^{3+} ions in $\text{La}_2\text{BaZnO}_5$ by site-selective laser-excitation spectroscopy

11:45	EO-8	Jehong Park	Decay time shortening of $\text{Zn}_2\text{SiO}_4\text{:Mn}_2^+$ phosphor by texturing particle structure
12:00	EO-9	Rama L. Moorthy	Emission characteristics of Nd^{3+} doped CFB glasses
12:15	EO-10	A. Benayas	$\text{Nd}^{3+}\text{:Y}_3\text{Al}_5\text{O}_{12}$ ceramic waveguides fabricated by direct laser writing technique: recent advances at GIEL

12:30-13:30 *Lunch*

13:30-20:00 Excursion to Chicago

Thursday (June 24)

Session-A(2) Spectroscopy of Nanoscale and Single Nano Objects

Presiding: Jan Hála, Alfred J. Meixner

8:00	AI-3	Frank Cichos	Photothermal correlation spectroscopy
8:30	AO-4	Fiorenzo Vetrone	Development of novel upconversion nanoparticles and strategies for their implementation in biology and medicine
8:45	AO-5	S. Lysenko	Size-dependent phase transition of VO_2 nanostructures induced by light excitation
9:00	AO-6	A. I. Rysanyanskiy	Free-carrier relaxation dynamics in InAs/InGaAlAs quantum dash
9:15	AO-7	P. J. Dereń	On tuning of spectroscopic properties of $\text{LaAlO}_3\text{:Pr}^{3+}$ nanocrystallites
9:30	AO-8	D. Hreniak	Highly efficient luminescence of $\text{YVO}_4\text{:Eu}$ in polymeric nanocomposites
9:45	AO-9	A. A. Gorshchev	Distributions of the parameters of single molecule spectra in the inhomogeneous absorption band: relation to macroscopic features of a doped solid
10:00	AO-10	Toshiro Tani	Single molecule FRET detection in CdSe-QD donor and Cy5-labeled molecular chaperone acceptor complex by imaging microscopy

10:15-10:45 *Coffee Break*

Session-F Electron-Phonon Interaction and Phonon Dynamics

Presiding: Peter Reineker, Roger Reeves

10:45	FI-1	A. V. Naumov	Far-field nano-diagnostics of solids by spatially resolved single-molecule spectroscopy
11:15	FO-1	Alexander Eisfeld	Absorption and energy transfer of quantum aggregates: Influence of complex exciton-phonon coupling
11:30	FO-2	A. A. Setlur	Quenching of orange-red Ce^{3+} luminescence in garnet hosts
11:45	FO-3	Yuriy Malyukin	Control of polaron formation in polymethine J-aggregates through electron – lattice interaction
12:00	FO-4	Yu. G Vainer	Low-temperature dynamics of glasses: study by single-molecule spectroscopy

12:15-13:30 *Lunch*

Session-G Dynamics of Highly Excited States

Presiding: Gary W. Burdick, Nicolay A. Kulagin

13:30	GI-1	Mike Reid	Excited-state structure and dynamics of high-energy states in lanthanide materials
14:00	GI-2	C. W. Thiel	Investigating electron binding energies of impurity ion states and host crystal bands in rare-earth-doped optical materials

14:30	GO-1	V. V. Pavlov	New technique of photoconductivity spectra and photodynamic processes investigation in doped crystals
14:45	GO-2	Wei Wang	Computational analysis of crystal field induced 5f-6d orbital hybridization for trivalent uranium ion in crystals of hexagonal symmetry
15:00-15:15		<i>Coffee Break</i>	
Session-H		Excited State Dynamics under Extreme Conditions <i>Presiding: Xinyi Zhang, P J. Dereń</i>	
15:15	HI-1	Marek Grinberg	Excited states dynamics under high pressure
15:45	HI-2	N. A. Kulagin	electronic structures and dynamics of ordered clusters with me and re ions on oxide surface
16:15	HO-1	W. M. Jadwisieniczak	Excitation mechanism of rare earth ions doped gallium nitride studied with high pressure luminescence and electron paramagnetic resonance
16:30	HO-2	P. Haro-González	Direct writing glass ceramics lines in glass samples by laser irradiation
16:45	HO-3	Víctor Lavín	Luminescence determination of the local structure of Eu ³⁺ ions in fluorozirconate glasses by temperature and pressure induced phase transition processes
Tutorial Lecture C		Quantum Information Storage – Protocols and Materials <i>Presiding: L. E. Bausá</i>	
17:00-18:00		TL-3	W. Tittel, R. L. Cone
19:00 – 21:00		Conference Banquet, Poster Prize Announcement	

Friday (June 25)

Session-I		Coherent, Nonlinear and High Resolution Spectroscopy	
		Presiding: R. L. Cone, M. Reid	
8:00	II-1	Ph. Goldner	Efficient solid state memories for quantum cryptography
8:30	II-2	Alfred J. Meixner	Nanometer scale spectroscopic imaging of organic semiconductor films by plasmon-polariton coupling
9:00	IO-1	Jun-ichi Inoue	Optical tuning of Berry phase effects in topological insulators
9:15	IO-2	Vladimir V.Egorov	Optical line shapes for polymethine dyes and their aggregates: novel theory of quantum transitions and its correlation with experiment
9:30	IO-3	S. A. Kirysheva	Pump-probe experiments with $\text{KY}_3\text{F}_{10}:\text{Ce}^{3+}+\text{Yb}^{3+}$ and $\text{CaF}_2:\text{Ce}^{3+}+\text{Yb}^{3+}$ crystals
9:45	IO-4	Indrek Renge	Simple repulsive-dispersive potential explains many dynamical and static properties of impurity spectra in soft solids
10:00-10:30		Coffee Break	
Session-J		Ultrafast Phenomena	
		Presiding: A.Nakamura, Haiorng Zheng	
10:30	JI-1	Andrey Akimov	Optical and photocurrent spectroscopy with picosecond strain pulses
11:00	JI-2	Shinichiro Iwai	Ultrafast IR and THz spectroscopy of photoinduced insulator to metal transition in highly correlated organic system
11:30	JO-1	S. Ishihara	Ultra-fast photo-induced dynamics in correlated electron systems with multiple degrees of freedom

11:45	JO-2	Daisuke Kosumi	Ultrafast S1 and ICT excited state dynamics of marine carotenoids as revealed by femtosecond one- and two-photon pump-probe spectroscopic measurements
12:00	JO-3	Takeshi Koyama	Femtosecond luminescence decay due to exciton energy transfer in single-walled carbon nanotube bundles
12:15-12:30		Closing	